



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2022-1158; Project Identifier MCAI-2022-00771-E; Amendment 39-22246; AD 2022-24-06]

RIN 2120-AA64

Airworthiness Directives; Rolls-Royce Deutschland Ltd & Co KG (Type Certificate previously held by Rolls-Royce plc) Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for certain Rolls-Royce Deutschland Ltd & Co KG (RRD) BR700-710A1-10, BR700-710A2-20, and BR700-710C4-11 model turbofan engines. This AD was prompted by reports of cracks on certain low-pressure compressor (LPC) rotor (fan) disks. This AD requires initial and repetitive visual inspections of certain LPC rotor fan disks and, depending on the results of the inspections, replacement of any LPC rotor fan disk with cracks detected. This AD also allows modification of the engine in accordance with RRD service information as a terminating action to these inspections, as specified in a European Union Aviation Safety Agency (EASA) AD, which is incorporated by reference (IBR). The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES:

AD Docket: You may examine the AD docket at [regulations.gov](https://www.regulations.gov) under Docket No.FAA-2022-1158; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, the mandatory continuing airworthiness information (MCAI), any comments received, and other information. The address for Docket Operations is U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

Material Incorporated by Reference:

- For material that is proposed for IBR in this AD, contact EASA, Konrad-Adenauer-Ufer 3, 50668 Cologne, Germany; phone: +49 221 8999 000; email: ADs@easa.europa.eu. You may find this material on the EASA website at ad.easa.europa.eu.

- You may view this material at the FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (817) 222-5110. It is also available at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2022-1158.

FOR FURTHER INFORMATION CONTACT: Sungmo Cho, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7241; email: sungmo.d.cho@faa.gov.

SUPPLEMENTARY INFORMATION:**Background**

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain RRD BR700-710A1-10, BR700-710A2-20, and BR700-710C4-11 model turbofan engines. The NPRM published in the *Federal Register* on September 14, 2022 (87 FR 56284). The NPRM was prompted by

EASA AD 2022-0110, dated June 15, 2022, issued by EASA, which is the Technical Agent for the Member States of the European Union (referred to after this as “the MCAI”). The MCAI states that there have been reports of cracks on certain LPC rotor fan disks.

In the NPRM, the FAA proposed to require accomplishing the actions specified in EASA AD 2022-0110, described previously, except for any differences or exceptions identified in the NPRM. The FAA is issuing this AD to address the unsafe condition on these products.

Discussion of Final Airworthiness Directive

Comments

The FAA received no comments on the NPRM or on the determination of the costs.

Conclusion

These products have been approved by the aviation authority of another country and are approved for operation in the United States. Pursuant to the FAA’s bilateral agreement with this State of Design Authority, it has notified the FAA of the unsafe condition described in the MCAI referenced above. The FAA reviewed the relevant data and determined that air safety requires adopting this AD as proposed. Accordingly, the FAA is issuing this AD to address the unsafe condition on these products. Except for minor editorial changes, this AD is adopted as proposed in the NPRM.

Related Service Information under 1 CFR Part 51

The FAA reviewed EASA AD 2022-0110. EASA AD 2022-0110 specifies procedures for initial and repetitive visual inspections of certain LPC rotor fan disks, and replacement of any LPC rotor fan disk with cracks detected.

This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in ADDRESSES.

Other Related Service Information

The FAA reviewed RRD BR700 Series Propulsion System Service Bulletin (SB) SB-BR700-72-101474, Revision 1, dated November 18, 2014 (RRD BR700 Series Propulsion System SB SB-BR700-72-101474); RRD BR700 Series Propulsion System SB SB-BR700-72-101952, Initial Issue, dated December 1, 2016 (RRD BR700 Series Propulsion System SB SB-BR700-72-101952); and RRD BR700 Series Propulsion System SB SB-BR700-72-A900732, Initial Issue, dated June 7, 2022 (RRD BR700 Series Propulsion System SB SB-BR700-72-A900732).

RRD BR700 Series Propulsion System SB-BR700-72-101474 and RRD BR700 Series Propulsion System SB SB-BR700-72-101952 describe procedures for the modification of the engine as a terminating action to the initial and repetitive visual inspections of certain LPC rotor fan disks. RRD BR700 Series Propulsion System SB SB-BR700-72-A900732 specifies procedures for initial and repetitive visual inspections of certain LPC rotor fan disks.

Costs of Compliance

The FAA estimates that this AD affects 2,068 engines installed on airplanes of U.S. registry.

The FAA estimates the following costs to comply with this AD:

Estimated costs

Action	Labor Cost	Parts Cost	Cost per product	Cost on U.S. operators
Inspect LPC compressor rotor fan disk	4 work-hours x \$85 per hour = \$340	\$0	\$340	\$703,120

The FAA estimates the following costs to do any necessary replacements that are required based on the results of the inspection. The agency has no way of determining the number of aircraft that might need these replacements:

On-condition costs

Action	Labor Cost	Parts Cost	Cost per product
Replace LPC compressor rotor fan disk	10 work-hours x \$85 per hour = \$850	\$470,000	\$470,850

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA’s authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency’s authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

(1) Is not a “significant regulatory action” under Executive Order 12866,

(2) Will not affect intrastate aviation in Alaska, and

(3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive:

2022-24-06 Rolls-Royce Deutschland Ltd & Co KG (Type Certificate previously held by Rolls-Royce plc): Amendment 39-22246; Docket No. FAA-2022-1158; Project Identifier MCAI-2022-00771-E.

(a) Effective Date

This airworthiness directive (AD) is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to Rolls-Royce Deutschland Ltd & Co KG (RRD) BR700-710A1-10, BR700-710A2-20, and BR700-710C4-11 model turbofan engines as identified in European Union Aviation Safety Agency AD 2022-0110, dated June 15, 2022 (EASA AD 2022-0110).

(d) Subject

Joint Aircraft Service Component (JASC) Code 7230, Turbine Engine Compressor Section.

(e) Unsafe Condition

This AD was prompted by reports of cracks on certain low-pressure compressor (LPC) rotor (fan) disks. The FAA is issuing this AD to prevent failure of the LPC rotor fan or blade. The unsafe condition, if not addressed, could result in high energy debris release, damage to the airplane, and reduced control of the airplane.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Required Actions

Except as specified in paragraphs (h) and (i) of this AD: Perform all required actions within the compliance times specified in, and in accordance with, EASA AD 2022-0110.

(h) Exceptions to EASA AD 2022-0110

(1) Where EASA AD 2022-0110 requires compliance from its effective date, this AD requires using the effective date of this AD.

(2) The “Remarks” section of EASA AD 2022-0110 does not apply to this AD.

(i) No Reporting Requirement

Although the service information referenced in EASA AD 2022-0110 specifies to submit certain information to the manufacturer, this AD does not include that requirement.

(j) Alternative Methods of Compliance (AMOCs)

The Manager, ECO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in § 39.19. In accordance with § 39.19, send your request to your principal inspector or local Flight Standards District Office, as

appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (k) of this AD and email to: ANE-AD-AMOC@faa.gov.

Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(k) Additional Information

For more information about this AD, contact Sungmo Cho, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7241; email: sungmo.d.cho@faa.gov.

(l) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) European Union Aviation Safety Agency AD 2022-0110, dated June 15, 2022.

(ii) [Reserved]

(3) For EASA AD 2022-0110, contact EASA, Konrad-Adenauer-Ufer 3, 50668 Cologne, Germany; phone: +49 221 8999 000; email: ADs@easa.europa.eu. You may find this EASA AD on the EASA website at ad.easa.europa.eu.

(4) You may view this service information at FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (817) 222-5110.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the

availability of this material at NARA, email: fr.inspection@nara.gov, or go to:

www.archives.gov/federal-register/cfr/ibr-locations.html.

Issued on November 14, 2022.

Christina Underwood, Acting Director,
Compliance & Airworthiness Division,
Aircraft Certification Service.

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